

Work Order ID 63235

Tuesday, October 26, 2010 8:37:24 AM

Page 1

Item ID: D412-664-209TRN

Accept

Revision ID:

Item Name: Crosstube Turning Detail

Start Date: 10/26/2010 Start Qty: 1.00

Required Date: 10/29/2010 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: *PL* Date: *10-10-26* Tooling:

QC: Date: SPC (Y/N):

Cust Item ID:

Customer:

Run Start

Stop

Sequence ID/ Work Center ID Operation Description Set Up/ Run Hours

Tool ID Tool # Plan Code Accept Qty Reject Qty Reject Number Insp. Stamp

Draw Nbr	Revision Nbr
D412-664-249	Rev B

100 0.00



Mori Seiki

MORI SEIKI CNC LATHE LARGE

Memo 0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA708
2-Turn first side as per Folio FA708
3- File transition lines smooth.

SL 10/11/04

110 0.00



QC

QC1- Inspect dimensions to dimension sheet

Memo 0.00

Quality Control

SL 10/11/04

PK 7

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D412-664-209 TRN PAR #: _____ Fault Category: X - Lines NCR: Yes No DQA: _____ Date: 10/11/11
 Resolution: Acceptable Disposition: use as is QA: N/C Closed Date: 10/11/11

NCR: <u>63235</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
10/11/10	100	OD over tolerance by 20.668" $\approx 0.003"$ Length over tolerance by $\approx 0.065"$	GP 10/11/10 Q8/042	Acceptable	Mx 10/11/10	S 10/11/10 Q8/042	GP 10/11/10 Q8/042	S 10/11/10

NOTE: Date & initial all entries

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

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Stop

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120  Mori Seiki	MORI SEIKI CNC LATHE LARGE	0.00							
Mori Seiki CNC Lathe Large	Memo 1-Turn second side as per Folio FA708 2- File transition lines smooth. 3- Remove sand and plugs 4-Scribe part # and batch # using vibrating stylus as per Dwg D412-664-249 Inside of Cuff(Donot engrave on outside of tube)	0.00							SL 10/11/04
130  QC	QC1- Inspect dimensions to dimension sheet	0.00							
Quality Control	Memo	0.00							
140  QC	QC8- Inspect parts - second check	0.00							
Quality Control	Memo	0.00							8/10/10/10 @

W/O:		WORK ORDER CHANGES					
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Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

SAD
10-11-10

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 Ø BE 10/11/10

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack
Location: LG

SAD 10-11-10

(1)

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Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

cd 10/11/11 JF
MF
10-11-11

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Picklist Print

Page 1

Tuesday, October 26, 2010 8:37:29 AM

Work Order ID: 63235



Parent Item: D412-664-209TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 10/26/2010

Required Date: 10/29/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 08-03-06 DD verified by:cc
IPP Rev B 08.04.02 Removed polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D6009-129

Manufactured No

110

Each

16.0000

1

1



Crosstube Material

Handwritten signature and date 10/11/04

Location

Loc Qty

Loc Code

LG

16

38342

2

53594

14

1

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	
Description: Crosstube Assembly (412 Low Aft)		Part Number:	D412-664-249
Inspection Dwg: D412-664-249 Rev: <i>A Rev. B</i> <i>08.11.10</i>		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.625	+/-0.010	2.628	-	Vein	ML-7
	2.680	+0.005/-0.000	2.688		"	"
	2.680	+0.005/-0.000	2.688		"	"
	2.687	+0.005/-0.000	2.696		"	"
	2.793	+0.005/-0.000	2.802		"	"
	2.930	+0.005/-0.000	2.939		"	"
	3.067	+0.005/-0.000	3.076		Micro	CNL-05
	3.205	+0.005/-0.000	3.208	-	"	"
	3.358	+0.005/-0.000	3.363	-	"	"
	3.378	+0.005/-0.000	3.384		"	"
	3.500	+0.005/-0.000	3.492		"	Stock
SIDE B	0.625	+/-0.010	2.630	-	Vein	ML-7
	2.680	+0.005/-0.000	2.687			
	2.680	+0.005/-0.000	2.688			
	2.687	+0.005/-0.000	2.696	LAB		
	2.793	+0.005/-0.000	2.801			
	2.930	+0.005/-0.000	2.938			
	3.067	+0.005/-0.000	3.073			
	3.205	+0.005/-0.000	3.207	-		
	3.358	+0.005/-0.000	3.364			
	3.378	+0.005/-0.000	3.384			
	3.500	+0.005/-0.000	3.492			
	0.127.82	+/-0.020	127.908		M-type	ML-7

OK of 10.12.10

Measured by: <i>gml</i>	Audited by: <i>S</i>	Prototype Approval:	N/A
Date: <i>10/11/09</i>	Date: <i>10/11/10</i>	Date:	N/A
Rev	Date	Change	Revised by Approved
A	08.11.07	New Issue (P/O D212-664-209)	KJ/EC <i>AS</i> <i>DS</i>

Item	Qty	Part Number	Description
	-249		
1	X	D412-664-249	CROSSTUBE ASSEMBLY (412 LOW AFT)
2	1	D6009-129	CROSSTUBE
3	2	D2856-600-1009	ABRASION STRIP
4	1	D2896-1	SUPPORT
5	2	D3189-1	CHAFING SHIELD
6	2	D3595-063-570	RUBBER CUSHION
7	2	D3660-1	CUFF
8	44	CR3212-4-07	RIVET (OR M7885/3-4-07)
9	4	MS21920-28	CLAMP
10	2	MS21920-30	CLAMP (OR MS21920-32)
11	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
12	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6009-129
FINISHED LENGTH = 127.826±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D412-664-249" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 42.5 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE THE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 15) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 17) INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 18) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 43235
BJO-10-26

RELEASED
R 2009-10-28
MJD

B	REVISE GENERAL NOTES; UPDATE TO CURRENT STANDARDS	RF	09.09.30
A	NEW ISSUE	CP	07.07.07
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	RF	D412-664-249	SHEET 1 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE (412 LOW AFT)	NTS
DATE	09.09.30	COPYRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

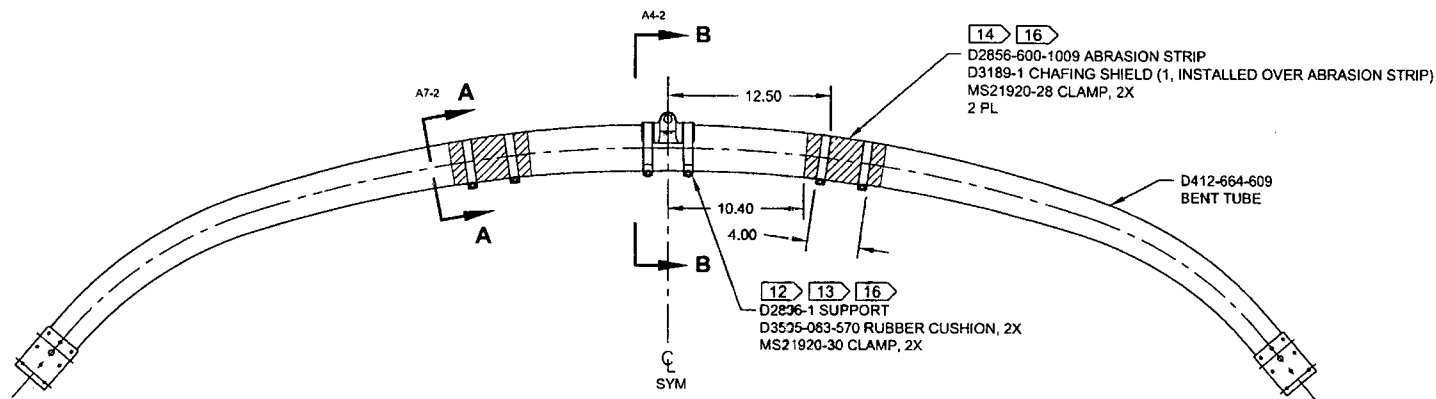
W/O:		WORK ORDER CHANGES					
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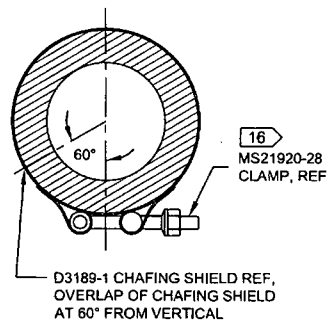
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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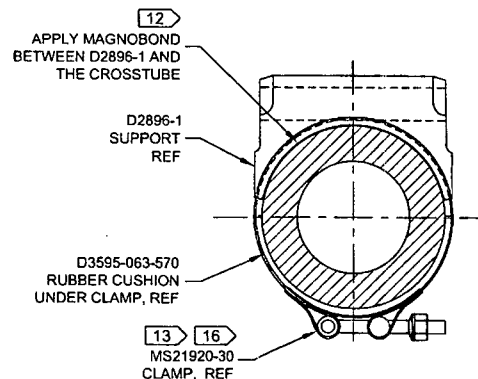
NOTE: Date & initial all entries



**D412-664-249
ASSEMBLY DETAIL**



SECTION A-A 06-2
SCALE 4X



SECTION B-B 05-2
SCALE 4X

w/b 43235

RELEASED
2009-10-28

DESIGN	97	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	97	DRAWING NO.	REV. B
MFG. APPR.	149	D412-664-249	SHEET 2 OF 4
APPROVED	149	TITLE	SCALE
DE APPR.	149	CROSSTUBE (412 LOW AFT)	NTS
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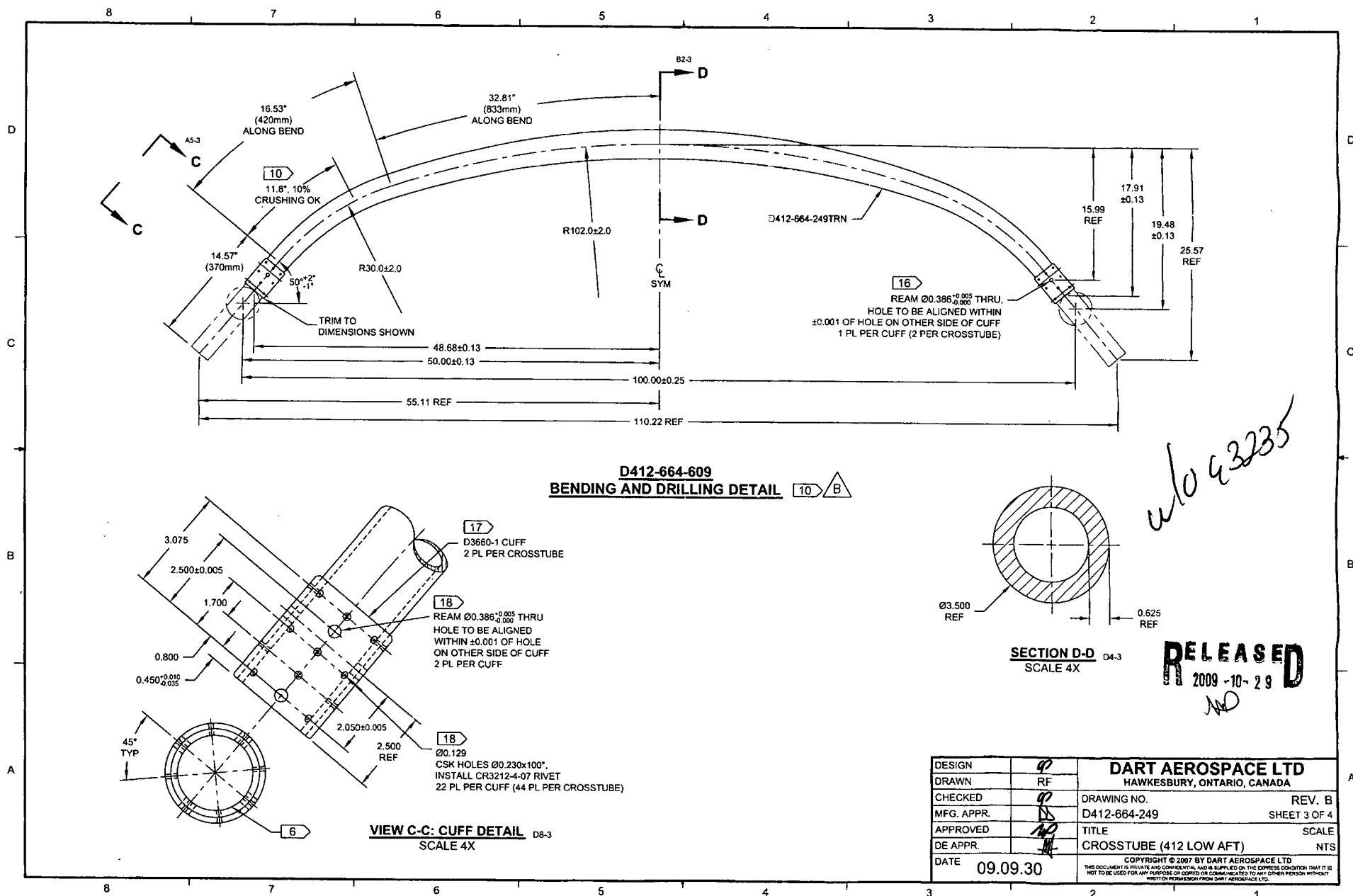
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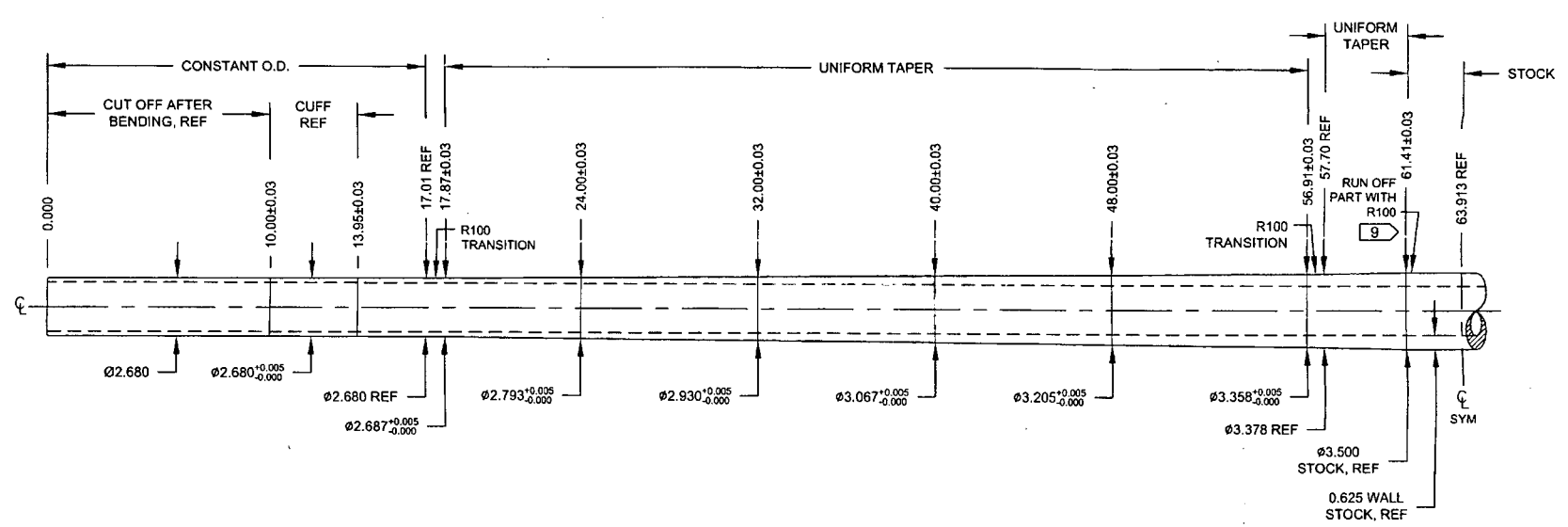
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8 7 6 5 4 3 2 1

D
C
B
A



D412-664-249TRN
TURNING DETAIL

o/w 43235

RELEASED
2009-10-29
MD

DESIGN	<i>RF</i>	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>RF</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>RF</i>	D412-664-249	SHEET 4 OF 4
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